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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Igor Stagljär

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46002 7590 10/03/2008

JOYCE VON NATZMER  
PEQUIGNOT + MYERS LLC  
200 Madison Avenue  
Suite 1901  
New York, NY 10016

EXAMINER

JOIKE, MICHELE K

ART UNIT

PAPER NUMBER

1636

MAIL DATE

DELIVERY MODE

10/03/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/509,507	<b>Applicant(s)</b> STAGLJAR ET AL.	
	<b>Examiner</b> MICHELE K. JOIKE	<b>Art Unit</b> 1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 48-76 is/are pending in the application.
- 4a) Of the above claim(s) 69 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 48-68, 70-73, 75 and 76 is/are allowed.
- 6) ☒ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 74 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

In view of the appeal brief filed on June 30, 2008, PROSECUTION IS HEREBY REOPENED. The new grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claims 48-76 are pending in the instant application. Claim 69 is withdrawn; claims 48-68 and 70-76 are examined. Any rejection of record in the previous Office Action, mailed October 30, 2007 that is not addressed in this action has been withdrawn.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 48-55, 57-62, 64-67 stand rejected under 35 U.S.C. 102(b) as being anticipated by Stagljär et al (PNAS 95: 5187-5192, 1998, specifically pp. 5187, 5191 and figure 2). This rejection is maintained for reasons of record in the previous office action mailed October 30, 2007. Note: claims 58, 63, 71 and 72 are now rejected under 35 USC 103(a), as discussed below. Claims 66 and 67 are now included in the rejection.

Stagljär et al teaches all of the limitations as previously described. Regarding claims 66 and 67, Stagljär et al teach a vector (pRS305( $\Delta$ wbp1-Cub-PLV)) which contains a lacZ selection marker, an E. coli ori, a LEU2 marker, a yeast ori, a T7 promoter, a partial wbp1 sequence, a Cub, and a PLV (as partially evidenced by [http://seq.yeastgenome.org/vectordb/vector\\_descrip/COMPLETE/PRS305.SEQ.html](http://seq.yeastgenome.org/vectordb/vector_descrip/COMPLETE/PRS305.SEQ.html)). This vector is transformed into a host cell. Therefore, Stagljär et al meet the limitations of claims 66 and 67, as well.

***Response to Arguments Concerning Claim Rejections – 35 USC § 102(b)***

Applicant's arguments filed June 30, 2008 have been fully considered but they are not persuasive.

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The following grounds of traversal are presented:

Applicants argue that the bait and prey vectors that are maintained episomally. In contrast, Stagljar's bait vector is integrated into the yeast genome. Applicants define the bait vector as the pRS305( $\Delta$ wbp1-Cub-PLV), and the prey vectors as the pRS314(NubI-ALG5), pRS304( $\Delta$ ost1-Nub) or the pOST1-Nub vector.

Applicants also argue that the bait vector does not have a promoter.

These arguments are not found persuasive for the following reasons.

Both types of vectors are maintained episomally. Applicants do not define "episomally" in the specification. Absent a definition by the Applicant, the Examiner is giving the word its broadest reasonable interpretation. Merriam-Webster's dictionary defines "episomal" as "a genetic determinant (as the DNA of some bacteriophages) that can replicate autonomously in bacterial cytoplasm or as an integral part of the chromosomes." Therefore, even integrated vectors are maintained episomally.

As evidenced by the plasmid sequence of pRS305 ([http://seq.yeastgenome.org/vectordb/vector\\_descrip/COMPLETE/PRS305.SEQ.html](http://seq.yeastgenome.org/vectordb/vector_descrip/COMPLETE/PRS305.SEQ.html)), the vector does contain a promoter.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 68 and 70 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Stagljär et al as applied to claims 48-55, 57-62, 64-67 above, and further in view of Ehrhard et al.

***Response to Arguments Concerning Claim Rejections – 35 USC § 103(a)***

Applicant's arguments filed June 30, 2008 have been fully considered but they are not persuasive.

The following grounds of traversal are presented:

Ehrhard et al do not address the deficiencies of Stagljär et al.

These arguments are not found persuasive for the following reasons.

As discussed above, there are no deficiencies to address.

Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stagljär et al as applied to claims 48-55, 57-62, 64-67 above, and further in view of Wedegaertner et al.

Stagljär et al teaches all of the limitations as described above. However, they do not teach the protein attached artificially to the membrane.

Wedegaertner et al (J. Biochem. 270(2): 503-506, 1995, especially p. 503) teach lipid modifications of G proteins so they will attach to the membrane. (Applicants

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discuss in their specification that fatty acid modification is a means for artificially attaching proteins.)

The ordinary skilled artisan, desiring to artificially attach a protein to the membrane, would have been motivated to combine the teachings of Stagljär et al teaching a split-ubiquitin system for detecting the interaction between two membrane bound proteins, as described above, with the teachings of Wedegaertner et al, teaching modifying proteins so they will attach to the membrane because Wedegaertner et al teach that fatty acylation regulates cellular localization. It would have been obvious to one of ordinary skill in the art to attach a protein to the membrane because Wedegaertner et al teach that different lipid modifications affect specific protein-protein interactions and localization to specific sites. Given the teachings of the prior art and the level of the ordinary skilled artisan at the time of the applicant's invention, it must be considered, absent evidence to the contrary, that said skilled artisan would have had a reasonable expectation of success in practicing the claimed invention.

Claims 63, 75 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stagljär et al as applied to claims 48-55, 57-62, 64-67 above, and further in view of Ecker et al.

Applicants claims use of a promoter that confers low level expression, wherein the promoter is CUP1.

Stagljar et al teaches all of the limitations as described above. They teach use of the CUP1 promoter in the pRS314(Nubi-ALG5) vector, however, they do not teach the CUP1 promoter in the bait vector.

Ecker et al (J. Biochem. 262(8): 3524-2527, 1987, especially p. 3524-2525) teach use of the CUP1 promoter for expression of the ubiquitin gene in yeast.

The ordinary skilled artisan, desiring to use a CUP1 promoter, would have been motivated to combine the teachings of Stagljär et al teaching a split-ubiquitin system for detecting the interaction between two membrane bound proteins, as described above, with the teachings of Ecker et al, teaching use of the CUP1 promoter for expression of the ubiquitin gene in yeast because Ecker et al teach that the CUP1 promoter can be partially repressed, which would lead to lower levels of expression. It would have been obvious to one of ordinary skill in the art to use CUP1 because Ecker et al teach that the important point is that the CUP1 promoter can be induced by copper, and if desired, high levels of expression can be attained. In other words, the promoter can be regulated for low or high levels of expression. Given the teachings of the prior art and the level of the ordinary skilled artisan at the time of the applicant's invention, it must be considered, absent evidence to the contrary, that said skilled artisan would have had a reasonable expectation of success in practicing the claimed invention.

Claims 71-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stagljär et al as applied to claims 48-55, 57-62, 64-67 above, and further in view of Clarke et al.



Applicants claims use of low copy vector, wherein the vector has a CEN/ARS origin of replication.

Stagljar et al teaches all of the limitations as described above. They teach use of the CEN/ARS origin of replication in the Nubl-ALG5 vector, however, they do not teach the CEN/ARS origin of replication in the bait vector.

Clarke et al (Ann. Rev. Genet. 19:29-56, 1985, especially pp. 32-33) teach use of the CEN/ARS vector as a low copy vector.

The ordinary skilled artisan, desiring to use a CEN/ARS vector, would have been motivated to combine the teachings of Stagljjar et al teaching a split-ubiquitin system for detecting the interaction between two membrane bound proteins, as described above, with the teachings of Clarke et al, teaching use of the CEN/ARS vector because Clarke et al teach that the copy number of a CEN/ARS vector is only 1-2 copies per cell. It would have been obvious to one of ordinary skill in the art to use a CEN/ARS vector because Clarke et al teach that the CEN/ARS vector greatly increases mitotic stability. Given the teachings of the prior art and the level of the ordinary skilled artisan at the time of the applicant's invention, it must be considered, absent evidence to the contrary, that said skilled artisan would have had a reasonable expectation of success in practicing the claimed invention.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

***Allowable Subject Matter***

Claim 74 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELE K. JOIKE whose telephone number is (571)272-5915. The examiner can normally be reached on M-F, 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach can be reached on 571-272-0739. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michele K Joike, Ph.D.  
Examiner  
Art Unit 1636

/David Guzo/  
Primary Examiner  
Art Unit 1636

/Joseph T. Woitach/  
Supervisory Patent Examiner, Art Unit 1633